

Rube Goldberg Machine Project

Task: Design and build a Rube Goldberg machine that will pop a balloon. (see rules & criteria)

Your team's work will be evaluated using the following rubric.



<u>Rube Goldberg Project Evaluation Criteria</u>	<u>Pts Possible</u>	<u>Pts Earned</u>
<i>Phase One - Planning and Design (10 points)</i>		
Team brainstorms & produces detailed material list & annotated diagrams	10	
<i>Phase Two - Building & Testing (30 points)</i>		
Collaboration & teamwork during building & testing	10	
Problem solving to resolve mistakes, and challenges	10	
Material management (clean work area, materials not wasted, stored properly)	5	
Consistently cleaning up completely and on time	5	
<i>Phase Three - Presentation of Completed Machine (60 points)</i>		
Machine successfully completes task	10	
Machine comprised of 8 or more unique steps	16	
Originality - at least one step	4	
Repeatable - 2 consecutive successful runs within 5 minute presentation time	5	
5 or more labeled simple machines (must include lever, pulley, inclined plane)	10	
5 or more labeled potential energy, kinetic energy changes	5	
Self and group evaluation of process and outcome	10	
<i>Penalties and Bonuses</i>		
Each touch of machine during presentation run	-1	
Each skipped step during presentation run	-3	
Creative display or presentation	Up to +3	
Engineering marvel bonus (creative & inventive design & construction)	Up to +3	
TOTAL POINTS	Up to 100	

Schedule

Day 1:	brainstorming, planning, design drawing(s), & material list
Day 2:	construction, testing, & analysis
Day 3:	reflection & redesign
Day 4:	construction, testing, & analysis
Day 5:	reflection & final preparation for presentations
Day 6:	presentations

Rules

safety:	safe for participants & observers; safety glasses required; no hazardous materials, explosives, or flame
physical size:	must fit on base (2'x2'), no height limitation
electrical energy:	If electrical energy is used, it must only come from a battery or batteries.
live animals:	not allowed
steps:	A step in the machine is a transfer of energy from one action to another action. Identical transfers of energy in succession are counted as 1 step.

example: A sequence of dominoes hitting each other is counted as 1 step. Counting 100 dominoes as 100 steps is repetitive and not in the spirit of Rube Goldberg.

programmable controllers	Controllers are allowed if their use fits within the definition of a step and are not used as a fail-safe.
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example: A ball falls onto a switch connected to a controller that turns on a motor.

NO: Motor turns on regardless of whether or not the ball hits the switch.

Name _____ Period _____ Date _____